(2) Administer the funds in accordance with 49 CFR part 18 and OMB Circulars A–102 and A–87; and

(3) Maintain its aggregate expenditures from all other sources, except those authorized under Chapter 1 of Title 23 of the United States Code, for highway safety data and traffic records programs at or above the average level of such expenditures in Federal fiscal years 1996 and 1997 (either State or federal fiscal year 1996 and 1997 can be used).

[63 FR 54048, Oct. 8, 1998, as amended at 65 FR 48911, Aug. 10, 2000]

PART 1340—UNIFORM CRITERIA FOR STATE OBSERVATIONAL SURVEYS OF SEAT BELT USE

Sec.

AUTHORITY: 23 U.S.C. 157; delegation of authority at 49 CFR 1.50.

SOURCE: 63 FR 46392, Sept. 1, 1998, unless otherwise noted.

§ 1340.1 Purpose.

This part establishes uniform criteria for surveys of seat belt use conducted by States under 23 U.S.C. 157.

§ 1340.2 Applicability.

These uniform criteria apply to State surveys of seat belt use, beginning in calendar year 1998 (except as otherwise provided in this part), and continuing annually thereafter through calendar year 2001.

§ 1340.3 Basic design requirements.

Surveys conducted in accordance with this part shall incorporate the following minimum design requirements:

(a) *Probability-based requirement.* The sample identified for the survey shall have a probability-based design such that estimates are representative of safety belt use for the population of interest in the state and sampling errors may be calculated for each estimate produced.

(b) *Observational requirement.* Minimum requirements include the following:

(1) The sample data shall be collected through direct observation of seat belt use on roadways within the State, conducted completely within the calendar year for which the seat belt use rate is being reported;

(2) Seat belt use shall be determined by observation of the use or non-use of a shoulder belt;

(3) Observers shall be required to follow a predetermined, clear policy in the event that observations cannot be made at an assigned site at the specified time (due to heavy rain, construction, safety problems, etc.);

(4) Instructions to observers shall specify which road and which direction of traffic on that road are to be observed (observers must not be free to choose between roads at an intersection); and

(5) Observers shall follow clear instructions on how to start and end an observation period and how to stop and start observations if traffic flow is too heavy to observe all vehicles or if vehicles begin moving too quickly for observation (to remove any possible bias, such as starting with the next belted driver).

(c) *Precision requirement.* The relative error (standard error divided by the estimate) for safety belt use must not exceed 5 percent.

§ 1340.4 Population, demographic, and time/day requirements.

Surveys conducted in accordance with this part shall comply with the following minimum population, demographic, and time/day requirements:

(a) *Population of interest.* (1) Drivers and front seat outboard passengers in passenger motor vehicles (passenger cars, pickup trucks, vans, and sport utility vehicles) must be observed in the survey. (Only overall restraint use for the population of interest is required. However, in order to assist in the evaluation of trends, it is recommended that data be collected in such a way that restraint use estimates can be reported separately for passenger cars and other covered vehicles, and separately for drivers and front-

seat outboard passengers within those vehicle groups.)

(2) Surveys conducted during calendar year 1998 shall be deemed to comply with paragraph (a)(1) of this section if passenger motor vehicles registered in-State are included in the survey. For surveys conducted during calendar year 1999 and thereafter, passenger motor vehicles registered both in-state and out-of-state must be included in the survey.

(b) *Demographics.* Counties, or other primary sampling units, totaling at least 85 percent of the State's population must be eligible for inclusion in the sample. States may eliminate their least populated counties, or other primary sampling units, to a total of fifteen percent or less of the total State population, from the sampling frame.

(c) *Time of day and day of week.* All daylight hours for all days of the week must be eligible for inclusion in the sample. Observation sites must be randomly assigned to the selected day-of-week/time-of-day time slots. If observation sites are grouped to reduce data collection burdens, a random process must be used to make the first assignment of a site within a group to an observational time period. Thereafter, assignment of other sites within the group to time periods may be made in a manner that promotes administrative efficiency and timely completion of the survey.

[63 FR 46392, Sept. 1, 1998, as amended at 65 FR 13683, Mar. 14, 2000]

§ 1340.5 Documentation requirements.

All sample design, data collection, and estimation procedures used in State surveys conducted in accordance with this part must be well documented. At a minimum, the documentation must:

(a) For sample design—

(1) Define all sampling units, with their measures of size;

(2) Define what stratification was used at each stage of sampling and what methods were used for allocation of the sample units to the strata;

(3) Explain how the sample size at each stage was determined;

(4) List all samples units and their probabilities of selection; and

(5) Describe how observation sites were assigned to observation time periods.

(b) For data collection—

(1) Define an observation period;

(2) Define an observation site and what procedures were implemented when the observation site was not accessible on the date assigned;

(3) Describe what vehicles were observed and what procedures were implemented when traffic was too heavy to observe all vehicles; and

(4) Describe the data recording procedures.

(c) For estimation—

(1) Display the raw data and the weighted estimates;

(2) For each estimate, provide an estimate of one standard error and an approximate 95 percent confidence interval; and

(3) Describe how estimates were calculated and how variances were calculated.

APPENDIX A TO PART 1340—SAMPLE DESIGN

Following is a description of a sample design that meets the final survey guidelines and, based upon NHTSA's experience in developing and reviewing such designs, is presented as a reasonably accurate and practical design. Depending on the data available in a State, substitutions in this design can be made without loss of accuracy. This information is intended only as an example of a complying survey design and to provide guidance for States concerning recommended design options. These are not design requirements. It is recommended that State surveys of safety belt use be designed by qualified survey statisticians.

I. SAMPLE DESIGN

A. *Sample population:* It is recommended that all controlled intersections or all roadway segments in the State (or in the parts of the State that have not been excluded by the 85 present demographic guideline) be eligible for sampling.

B. *First Stage:* Usually, counties are the best candidates for primary sampling units (PSUs). In large States with differing geographic areas, it is recommended that stratification of PSUs by geographic region be employed prior to PSU selection. Counties should be randomly selected, preferably with probabilities proportional to vehicle miles of travel (VMT) in each county. If VMT is not available by county, PSUs can also be selected with probability proportional to county population. When sampling PSUs, States

should ensure that an adequate mix of rural and urban areas are represented. In some cases, urban/rural stratification must be employed prior to PSU selection. In other cases, it may be more practical to perform urban/rural stratification at the second sampling stage.

C. *Second Stage:* Within sampled PSUs, it is recommended that road segments be stratified by road type. For example, a two-strata design might be major roads vs. local roads, a three strata design might be high, medium and low traffic volume roads. The sample should be allocated to these strata by estimated annual VMT in each stratum. The sample of road segments within a stratum should be selected with probability proportional to average daily VMT. When enumerating all local roads is impractical, additional stages of selection can be introduced and alternative sample probabilities can be used. For example, census tracts within counties can be selected with probability proportional to VMT, or, if VMT is not available, proportional to the square root of the population. Next, within each sampled census tract, road segments can be selected.

D. *Sample Size:* The following tables are provided as rough guidelines for determining sample size for estimating belt use with the required level of precision. The numbers are based on results from previous probability-based seat belt surveys.

DETERMINING FIRST STAGE SAMPLE SIZE

Number of counties in State	Number of counties in sample
10	7
20	11
30	13
40	15
50	16
60	17
70	18
80	19
90	19
100–120	20
130–170	21
More than 180	22

DETERMINING SECOND STAGE SAMPLE SIZE

Average number of road segments in each sampled county	Number of road segments sampled in each sample county
50	19
60	20
70	21
80	21
90	22
100	23
200	26
300	27
400	27
500–900	28
More than 1000	29

E. *Example:* To achieve the required level of precision, a State with 100 counties would sample 20 counties at the first stage. At the second stage, assuming an average of 100 road segments in each sampled county, a sample of 23 road segments per county would be selected. The total sample size would be 20×460 observational sites.

II. DATA COLLECTION

A. Exact observation sites, such as the specific intersection on a road segment, should be determined prior to conducting the observations.

B. Direction of traffic to be observed should be determined prior to conducting the observations.

C. If traffic volume is too heavy to accurately record information, predetermined protocol should exist for selecting which travel lanes to observe.

D. Observations should be conducted for a predetermined time period, usually one hour. Time periods should be the same at each site.

E. To minimize travel time and distance required to conduct the observations, clustering of sampled sites can be done. Sample sites should be grouped into geographic clusters, with each cluster containing major and local roads. Assignment of sites and times within clusters should be random.

F. Two counts should be recorded for all eligible vehicles:

1. Number of front seat outboard occupants.

2. Number of these occupants wearing shoulder belts.

III. ESTIMATION

A. Observations at each site should be weighted by the site's final probability of selection.

B. An estimate of one standard error should be calculated for the estimate of belt use. Using this estimate, 95 percent confidence intervals for the estimate of safety belt use should be calculated.